



**I. IDENTIFICATION OF THE REAL PARTY OF INTEREST**

The real party in interest is:

NCR Corporation  
1700 S. Patterson Blvd.  
Dayton, OH 45479

by virtue of assignments by the inventors Jerry L. Klindt and Paul L. Sinclair.

**II. IDENTIFICATION OF RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences.

**III. STATUS OF ALL THE CLAIMS, PENDING OR CANCELLED, AND IDENTIFYING THE CLAIMS APPEALED**

The application as originally filed contained 30 claims. All pending claims of the present application are reproduced in Appendix A, attached hereto.

**IV. STATUS OF ANY AMENDMENT FILED SUBSEQUENT TO FINAL REJECTION**

A response to the final office was filed by the Applicants on April 9, 2004. An Advisory Action was mailed by the examiner and was received by the Applicants on May 6, 2004. The Advisory Action indicated that the proposed amendments made in the response to the final office action would *not* be entered. Consequently, the status of the claims is as recited in Appendix A.

**V. SUMMARY OF THE INVENTION**

Applicants' invention, in a first aspect, features a method for copying a portion of a database structure. The database includes one or more database objects. The method includes recursively retrieving object definitions for one or more database objects associated with a query to produce an ordered set of object definitions. Fig. 6, Elements 605 and 610; Figs. 7-8; Page 9,

Lines 1-2, Page 9, Line 24-Page 11, Line 7. The method further includes building a copy of the database structure using the ordered set of object definitions. Fig. 6, Element 620; Page 9, Lines 24-25.

Applicants' invention, in a second aspect, features a computer-readable medium containing computer-executable code for instructing a computer to recursively retrieve object definitions for one or more database objects associated with a query to produce an ordered set of object definitions. Fig. 6, Elements 605 and 610; Figs. 7-8; Page 9, Lines 1-2, Page 9, Line 24-Page 11, Line 7. The computer program further includes executable instruction that cause the computer to build a copy of the database structure using the ordered set of object definitions. Fig. 6, Element 620; Page 9, Lines 24-25.

Applicants' invention, in a third aspect, features a package of data useful in building a copy of a database structure generated in accordance with recursively retrieving object definitions for one or more database objects associated with a query to produce an ordered set of object definitions. Figure 6, Element 610, Page 5, Line 7-Page 6, Line 3, Page 9, Lines 6-9.

## **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

1. Whether independent claims 1, 11, and 21 are unpatentable under 35 U.S.C. 103(a) over Bapat (U.S. Patent No. 5,295,256).

## **VII. ARGUMENTS OF THE APPELLANTS, WITH EACH ISSUE IN SEPARATE HEADINGS, WITH RESPECT TO EACH ISSUE PRESENTED FOR REVIEW**

A. Bapat does not teach or suggest copying a portion of a portion of a database structure by recursively retrieving object definitions in response to a query as claimed in claims 1, 11, and 21.

The Examiner states in her response to Arguments (page 2, Final Office Action, Paper

No. 7) made in the previous Office Action Response that:

Applicant's arguments filed 10/29/03 have been fully considered but they are not persuasive. Claims 1-30 are pending in this Office Action.

Applicant argues that Bapat does not teach "each object in the hierarchy is associated with a query and recursively retrieving object definitions for one or more database objects associated with a query to produce an ordered set of object definition." Bapat teaches that each object in the hierarchy is processed by a loop beginning at step 292, which selects every class definition in the object class hierarchy. Each class definition is retrieved at step 292 until no more objects in hierarchy are processed. Each object in the hierarchy is processed when the application make a call to the new method such as retrieve. It means that objects in the hierarchy are associated with the application's call. The application's call is represented as a query. Recursively is defined as to repeat again. Since each class definition, which is retrieved in a loop, is repeated many times until no more objects class in hierarchy is processed, thus, each class definition in hierarchy is retrieved recursively and in order. Each class definition contains one or more object definitions. For the above reasons, definitely, when system retrieves each class definition in hierarchy, the system retrieves each object definition of the class definition to produce an ordered set of object definitions too (fig. 13, col. 10, lines 35-65; col. 6, lines 65-67).

Applicant argues that Bapat does not teach "building a copy of the database structure using the ordered set of object definitions." Bapat teaches that a class hierarchy structure is translated into the relational table structure by mapping parent class 22 to a table 32. In a similar manner, class 24 is mapped to a table 38. A class in hierarchy includes objects definitions. Since, the system maps parent class 22 to a table 32 before mapping class 24 to a table 38, thus the system retrieves set of class definitions or object definitions in order. By mapping a class hierarchy structure into the relational table, the system creates a relational table structure, which contains all of classes or objects of the hierarchy structure. Thus, the relational table structures are presented as a copy of the hierarchy class structure. The hierarchy class structure is a data structure (col. 6, lines 60-65; col. 7, lines 1-5, figs. 1-3).

Applicant argues that Bapat does not teach "categorizing each identified object into a category." Bapat teaches class site contains object name, address, phone number, site-category. Class vendor contain object vendor name, object vendor address, object vendor phone number. The above information shows that each

object is classified into different classes. Each class is represented as a category (col. 19, lines 35-50).

For the above reason, examiner believed that rejection of the last office action was proper.

Applicants' arguments filed on 10/29/2003 are reproduced below:

Applicants respectfully disagree and submit that Bapat does not disclose, teach, or suggest each and every feature recited in Applicants' independent Claims 1, 11, and 21. For example, Bapat does not disclose teach or suggest "recursively retrieving object definitions for one or more database objects associated with a query to produce an ordered set of object definitions," as recited in Applicants' Claim 1. To the contrary, Bapat merely discloses "a translator which converts object-oriented representations of data into relational tables." (Column 5, lines 33-36). For example, Bapat provides that a class construct may include a parent class 22 having "several attributes associated with it," a derived class 24 that "inherits the attributes of the parent class 22 and . . . has its own attributes," and a derived class 26 that "inherits attributes from derived class 24 and parent class 22 and contributes its own attributes." (Column 6, lines 34-49). Bapat provides "a mechanism for mapping this hierarchical schema into a relational table schema." (Column 6, lines 55-57). "[The] parent class 22 is mapped to a table 32 which is named after the class name (P1), . . . a table 38 is constructed representing derived class 24, . . . [and] a third table 44 is constructed to represent derived class 26." (Column 6, line 62 through Column 7, line 9). Accordingly, Bapat is limited to a system for imposing structure on a hierarchical schema to produce tables representing each class in the hierarchical schema. As such, although Bapat discloses that "each object in the hierarchy is processed by a loop beginning at step 292 which selects every class definition in the object class hierarchy," the class definitions are merely used with a "CREATE TABLE" SQL command to construct a table with the same table name. (Column 10, lines 38-45). Thus, Bapat does not teach that each object in the hierarchy is associated with a query as required by Claim 1. For at least these reasons, Applicants respectfully submit that Bapat does not disclose "recursively retrieving object definitions for one or more database objects associated with a query to produce an ordered set of object definitions," as recited in Applicants' Claim 1.

Additionally, Applicants submit that Bapat does not disclose, teach, or suggest, "building a copy of the database

structure using the ordered set of object definitions," as recited in Applicants' Claim 1. The Examiner has acknowledged that the recited features and operation are absent from the teachings of Bapat but states that "it would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply Bapat's teaching of restoring each retrieved class or struct definition in each file in class hierarchy table and class attribute table in order to allow any user to create a new data structure in order." (Office Action, page 3). Applicants respectfully disagree. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the Examiner must present a convincing line of reasoning as to why the art is one that would have found the claim to be obvious in light of the teachings of the references." M.P.E.P. § 706.02(j) (citing *Ex parte Clapp*, 227 U.S.P.Q. 972, 973 (Bd. Pat. App. & Inter. 1985)). The Examiner presents neither. Not only does the Examiner fail to cite any support for his conclusion, but the Examiner's conclusion does not follow from the disclosure of Bapat. As discussed above, Bapat relates to a system for translating data from a hierarchy scheme to a relational scheme for storage purposes. As such, the system of Bapat uses object definitions for a class to impose structure on a hierarchical schema to produce tables representing each class in the hierarchical schema. If a "proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." M.P.E.P. § 2143.01. Applicants respectfully submit that the modification of Bapat, as suggested by the Examiner, would "change the principle of operation" of Bapat. Accordingly, Bapat also does not disclose, teach, or suggest "building a copy of the database structure using the ordered set of object definitions," as recited in Applicants' independent Claim 1.

Independent Claims 11 and 21 recite certain features and operations that are similar to the features and operations discussed above. For example, Claim 11 recites a computer-readable medium operable to "recursively retrieve object definitions for one or more database objects associated with a query to produce an ordered set of object definitions" and "build a copy of the database structure using the ordered set of object definitions." Claim 21 recites "recursively retrieving object definitions for one or more database objects associated with a query to produce an ordered set of object definitions." Thus, for reasons similar to those discussed above with regard to Claim 1, Applicants respectfully submit that Bapat does not disclose, teach, or suggest each and every feature

and operation as set forth in Applicants' Claims 11 and 21.

For these reasons, Applicants respectfully request that the rejections of Claims 1, 11 and 21 be withdrawn.

The Applicants reiterate the above argument with the same force and effect as originally submitted. The Applicants further note that Bapat, upon which the rejection of the independent claims stand or fall, is directed to mapping objects into relational database tables. Bapat does not teach or suggest mapping *some* of the objects, but rather *all* of the objects. In contrast, the present invention obtains information on only a portion of the database. Moreover, Bapat does not teach or suggest a *recursive* retrieval of objects from *within* the database, but rather a systematic generation of relational database representations that are put *into* the Bapat database. Bapat does not teach or suggest recursive retrieval of object definitions from within the database because Bapat is directed to another purpose -- one that is unrelated to retrieving object definitions from within the database. That is why Bapat does not disclose, teach, or suggest the limitations of independent claims 1, 11 and 21, and that is why Bapat does not render independent claims 1, 11 and 21 obvious under 35 U.S.C. §103(a). M.P.E.P. §706.02(j), *Ex parte Clapp, supra*. For these reasons, Applicants respectfully request that the rejections of Claims 1, 11 and 21 be withdrawn.

Claims 2-10 depend from claim 1, claims 12-20 depend from claim 11, and claims 22-30 depend from claim 21, and contain all limitations thereof. Therefore the dependent claims should be allowable for the same reasons as independent claims 1, 11 and 21. Applicants respectfully submit that the cited reference does not disclose an apparatus, system or method which anticipates the present invention as claimed in independent claims 1, 11 and 21, or in the claims that depend upon claims 1, 11 and 21. Therefore, it is respectfully submitted that all

claims are allowable over the prior art of record, and such allowance is earnestly solicited.




Summary

In light of the foregoing, Applicants respectfully request that the final rejection of the pending claims should be reversed and the application be remanded for allowance of the pending claims, or, alternatively, remand the application for further examination if appropriate references can be found by the examiner.

Applicants have previously submitted the fee for filing this appeal. Applicants believe that there are no additional fees due in association with the filing of this Appeal Brief. Should any fees be required, Applicants request that the fees be debited from deposit account number 50-1673.

Respectfully submitted,



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Howard L. Speight  
Reg. No. 37,733  
Baker Botts L.L.P.  
910 Louisiana  
Houston, Texas 77002  
Telephone: (713) 229-2057  
Facsimile: (713) 229-2757  
E.Mail: Howard.Speight@bakerbotts.com  
ATTORNEY FOR APPLICANT

Date: January 17, 2006

**APPENDIX A**

1. (original) A method for copying a portion of a database structure, the database including one or more database objects, the method comprising  
  
    recursively retrieving object definitions for one or more database objects associated with  
  
        a query to produce an ordered set of object definitions;  
  
    building a copy of the database structure using the ordered set of object definitions.
2. (original) The method of claim 1, where recursively retrieving object definitions includes  
  
    recursively identifying objects associated with the query;  
  
    categorizing each identified object into a category;  
  
    retrieving an object definition for each identified object using a tool corresponding to the  
  
        category with which the identified object is connected.
3. (original) The method of claim 2, where the categories include tables, views, join indexes, triggers and macros.
4. (original) The method of claim 2, where the tool is
  - a. a SHOW VIEW statement if the identified object is categorized as a view;
  - b. a SHOW TABLE statement if the identified object is categorized as a table;
  - c. a SHOW JOIN INDEX statement if the identified object is categorized as a join index;
  - d. a SHOW TRIGGER statement if the identified object is categorized as a trigger;
  - e. a SHOW MACRO statement if the identified object is categorized as a macro.

5. (original) The method of claim 1, where recursively retrieving object definitions includes
  - a. retrieving unretrieved object definitions for a set of objects known to be associated with the query;
  - b. adding to the set of objects known to be associated with the query those objects contained in the retrieved object definitions that are not already in the set of objects known to be associated with the query;
  - c. repeating items a and b until no new objects are added to the set of objects known to be associated with the query.
6. (original) The method of claim 1, further comprising sending the ordered set of object definitions from a first computer to a second computer.
7. (original) The method of claim 1, further comprising changing the order of the ordered set of object definitions.
8. (original) The method of claim 7, where changing the order of the ordered set of object definitions includes reordering the object definitions so that each object definition is ordered before the definition of any object that references it.
9. (original) The method of claim 1, where the object definitions are ordered so that each object definition is ordered before the definition of any object that references it.

10. (original) The method of claim 1, where recursively retrieving object definitions for one or more database objects includes looking for references to the one or more database objects in a data dictionary.

11. (original) A computer-readable medium containing computer-executable code for instructing a computer to:

recursively retrieve object definitions for one or more database objects associated with a query to produce an ordered set of object definitions;  
build a copy of the database structure using the ordered set of object definitions.

12. (original) The computer-executable code of claim 11, in which, when recursively retrieving object definitions, the computer:

recursively identifies objects associated with the query;  
categorizes each identified object into a category;  
retrieves an object definition for each identified object using a tool corresponding to the category with which the identified object is connected.

13. (original) The computer-executable code of claim 12, where the categories include tables, views, join indexes, triggers and macros.

14. (original) The computer-executable code of claim 12, where the tool is
- a. a SHOW VIEW statement if the identified object is categorized as a view;
  - b. a SHOW TABLE statement if the identified object is categorized as a table;
  - c. a SHOW JOIN INDEX statement if the identified object is categorized as a join index;
  - d. a SHOW TRIGGER statement if the identified object is categorized as a trigger;
  - e. a SHOW MACRO statement if the identified object is categorized as a macro.
15. (original) The computer-executable code of claim 11, in which, when recursively retrieving object definitions, the computer:
- a. retrieves unretrieved object definitions for a set of objects known to be associated with the query;
  - b. adds to the set of objects known to be associated with the query those objects contained in the retrieved object definitions that are not already in the set of objects known to be associated with the query;
  - c. repeats items a and b until no new objects are added to the set of objects known to be associated with the query.
16. (original) The computer-executable code of claim 11, further comprising computer-executable code instructing the computer to send the object definitions from a first computer to a second computer.

17. (original) The method of claim 11, further comprising computer-executable code instructing the computer to change the order of the ordered set of object definitions.

18. (original) The computer-executable code of claim 17, in which, when changing the order of the ordered set of object definitions, the computer reorders the object definitions so that each object definition is ordered before the definition of any object that references it.

19. (original) The computer-executable code of claim 11, in which, when storing the definitions, the computer stores the definitions so that each object definition is ordered before the definition of any object that references it.

20. (original) The computer executable code of claim 11, in which, when recursively retrieving object definitions for one or more database objects, the computer looks for references to the one or more database objects in a data dictionary.

21. (original) A package of data useful in building a copy of a database structure generated in accordance with the following act:

recursively retrieving object definitions for one or more database objects associated with  
a query to produce an ordered set of object definitions.

22. (original) The package of data of claim 21, where the object definitions are recursively retrieved in accordance with the following acts:

- recursively identifying objects associated with the query;
- categorizing each identified object into a category;
- retrieving an object definition for each identified object using a tool corresponding to the category with which the identified object is connected.

23. (original) The package of data of claim 22, where the categories include tables, views, join indexes, triggers and macros.

24. (original) The package of data of claim 22, where the tool is

- a. a SHOW VIEW statement if the identified object is categorized as a view;
- b. a SHOW TABLE statement if the identified object is categorized as a table;
- c. a SHOW JOIN INDEX statement if the identified object is categorized as a join index;
- d. a SHOW TRIGGER statement if the identified object is categorized as a trigger;
- e. a SHOW MACRO statement if the identified object is categorized as a macro.

25. (original) The package of data of claim 21, where the object definitions are recursively retrieved in accordance with the following acts:

- a. retrieving unretrieved object definitions for a set of objects known to be associated with the query;
- b. adding to the set of objects known to be associated with the query those objects contained in the retrieved object definitions that are not already in the set of objects known to be associated with the query;
- c. repeating items a and b until no new objects are added to the set of objects known to be associated with the query.

26. (original) The package of data of claim 21, further comprising the act of sending the ordered set of object definitions from a first computer to a second computer.

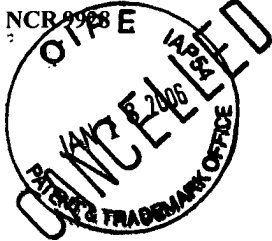
27. (original) The package of data of claim 21, further comprising the act of instructing the computer to change the order of the ordered set of object definitions.

28. (original) The package of data of claim 27, where the act of changing the order of the ordered set of object definitions includes reordering the object definitions so that each object is ordered before the definition of any object that references it.

29. (original) The package of data of claim 21, where the act of storing object definitions includes storing the object definitions so that each object definition is ordered before the definition of any object that references it.



30. (original) The package of data of claim 21, where the act of recursively retrieving object definitions for one or more database objects includes looking for references to the one or more database objects in a data dictionary.

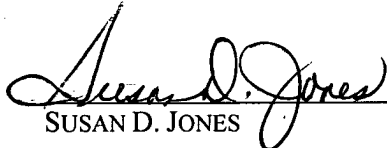


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APPLICATION NUMBER: 09/892,837  
FILING DATE: JUNE 27, 2001  
FIRST NAMED INVENTOR: KLINDT, ET AL.  
GROUP ART UNIT: 2172  
EXAMINER: CAM Y.T. TRUONG  
TITLE: "COPYING A PORTION OF A DATABASE STRUCTURE ASSOCIATED WITH A QUERY"  
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